Title: METHOD FOR EXTRACTING FINGERPRINT FEATURE DATA USING
RIDGE ORIENTATION MODEL
Inventor: Jun Sung YOON et al.
Application No.: To Be Assigned
Docket No.: 404302000700

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Fig.1a

Fig.1b

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RIDGE ORIENTATION MODEL
or: Jun Sung YOON et al.
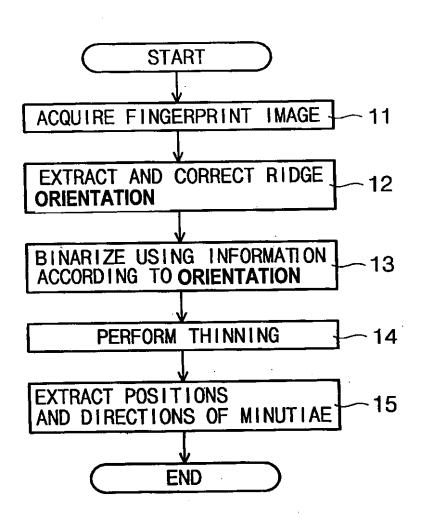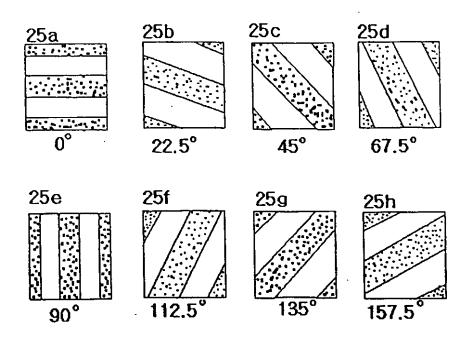cation No.: To Be Assigned
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```
        ┌─────────────────┐
        │      START      │
        └─────────────────┘
                 │
                 ▼
   ┌──────────────────────────────┐
   │  ACQUIRE  FINGERPRINT  IMAGE  │──── 11
   └──────────────────────────────┘
                 │
                 ▼
   ┌──────────────────────────────┐
   │  EXTRACT  AND  CORRECT  RIDGE │──── 12
   │  ORIENTATION                  │
   └──────────────────────────────┘
                 │
                 ▼
   ┌──────────────────────────────┐
   │  BINARIZE  USING  INFORMATION │──── 13
   │  ACCORDING  TO  ORIENTATION   │
   └──────────────────────────────┘
                 │
                 ▼
   ┌──────────────────────────────┐
   │      PERFORM  THINNING        │──── 14
   └──────────────────────────────┘
                 │
                 ▼
   ┌──────────────────────────────┐
   │  EXTRACT  POSITIONS           │──── 15
   │  AND  DIRECTIONS  OF  MINUTIAE│
   └──────────────────────────────┘
                 │
                 ▼
        ┌─────────────────┐
        │       END       │
        └─────────────────┘
```
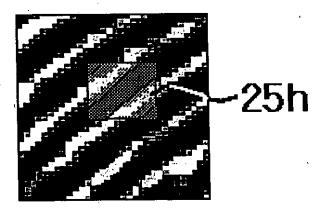
Fig.2

Title: METHOD FOR EXTRACTING FINGERPRINT FEATURE DATA USING
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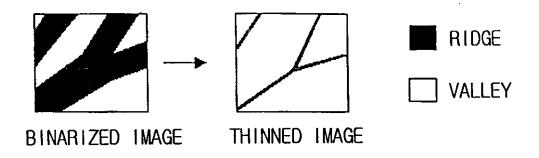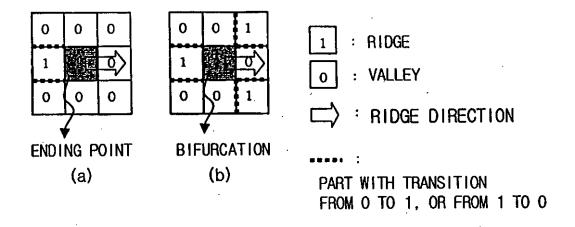Docket No.: 404302000700

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25a
0°

25b
22.5°

25c
45°

25d
67.5°

25e
90°

25f
112.5°

25g
135°

25h
157.5°

▨ REGION WITH NEGATIVE COEFFICIENT VALUE
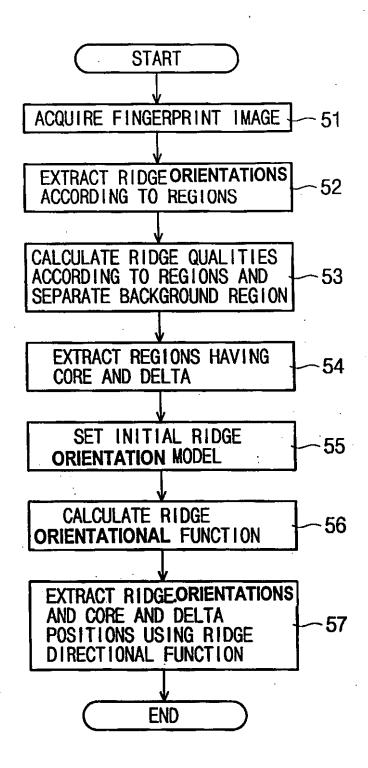☐ REGION WITH POSITIVE COEFFICIENT VALUE

Fig 3a

25h

Fig 3b

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BINARIZED IMAGE   THINNED IMAGE

⬛ RIDGE

☐ VALLEY

Fig. 4

ENDING POINT   BIFURCATION
(a)   (b)

1 : RIDGE

0 : VALLEY

⇨ : RIDGE DIRECTION

■■■■ :
PART WITH TRANSITION
FROM 0 TO 1, OR FROM 1 TO 0

Fig. 5

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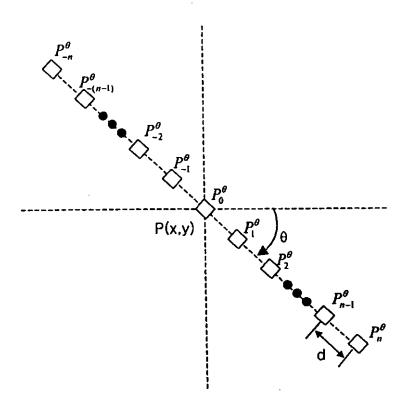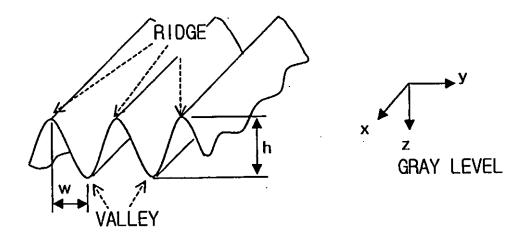Docket No.: 404302000700

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START

ACQUIRE FINGERPRINT IMAGE — 51

EXTRACT RIDGE ORIENTATIONS
ACCORDING TO REGIONS — 52

CALCULATE RIDGE QUALITIES
ACCORDING TO REGIONS AND — 53
SEPARATE BACKGROUND REGION

EXTRACT REGIONS HAVING
CORE AND DELTA — 54

SET INITIAL RIDGE
ORIENTATION MODEL — 55

CALCULATE RIDGE
ORIENTATIONAL FUNCTION — 56

EXTRACT RIDGE ORIENTATIONS
AND CORE AND DELTA
POSITIONS USING RIDGE — 57
DIRECTIONAL FUNCTION

END

Fig. 6

Title: METHOD FOR EXTRACTING FINGERPRINT FEATURE DATA USING
RIDGE ORIENTATION MODEL
Inven   n Sung YOON et al.
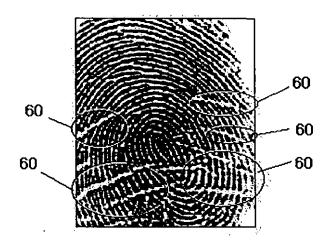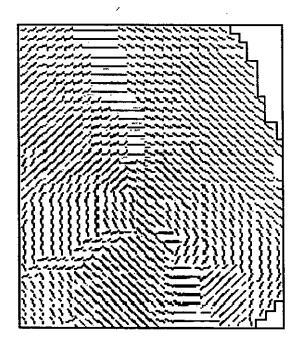Application No.: To Be Assigned
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Fig. 7

Fig. 8

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Fig. 9a

Fig. 9b·

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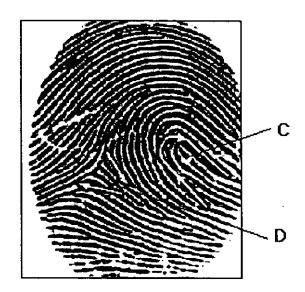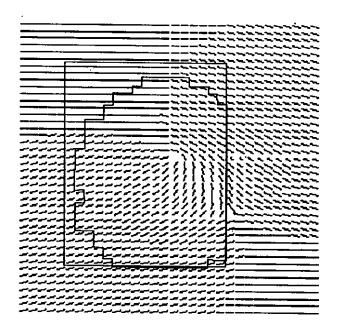Docket No.: 404302000700

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Fig. 10a

Fig. 10b

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Fig. 11a

Fig. 11b